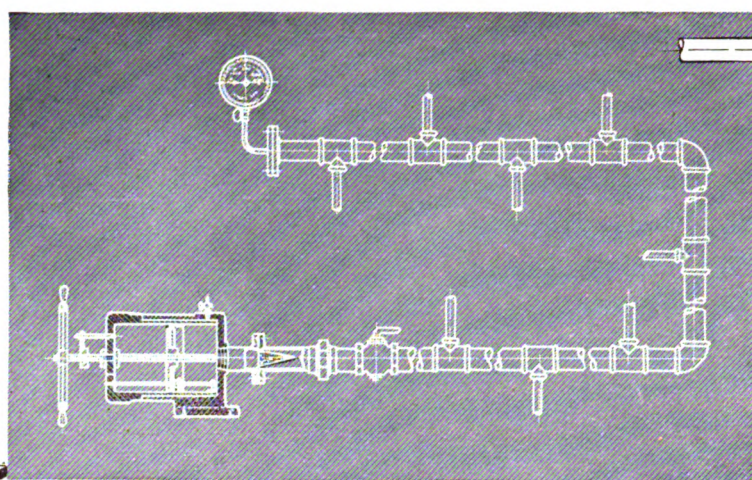
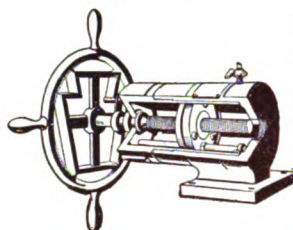
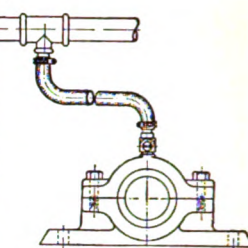


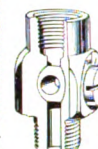
Sectional view of Keystone Manifold Safety Lubricator, which is the main grease reservoir and agency of compression



INSTALLATION SUGGESTION



Illustrating "Take-Off" from "Header" Line to bearing



Sectional view of Pressure Reduction Valve placed at each bearing

HERE is a system of lubrication that to the best of our knowledge, acquired over a period of nearly a half century in the scientific lubrication of machinery, is so positive in its application, so safe and so much more economical, that it will pay a quicker return on your investment than any equipment you have lately installed.

Such has been the experience of leading industrial executives who have equipped ore bridges, open-hearth cranes, belt conveyors and various types of machinery in steel, paper, wood-working, rubber and cement mills, besides other miscellaneous machines—crushers, boring mills, presses, lathes, etc., with the Keystone Manifold Safety System of Keystone Grease Lubrication.

THE KEYSTONE LUBRICATING COMPANY,
PHILADELPHIA, PA., at 21st & Clearfield
Streets, Est. 1884.



WRITE FOR

FREE BOOKLET

KEYSTONE MANIFOLD SAFETY SYSTEM of KEYSTONE GREASE LUBRICATION

Complete Letter to The Blast Furnace and Steel Plant

A Record of Achievement

Less than three years have elapsed since The Koppers Company's Becker type combination coke and gas oven was introduced. In this time contracts for seventeen installations totaling 1099 ovens of the Becker type have been received. Eleven of these plants are now in operation, demonstrating in actual practice that this type of oven is a marked improvement over all previous types from the standpoint of design, construction and operation.

Plants of the Becker Oven Type in the United States and Canada

COKE PLANTS	LOCATION	NO. OVENS
U. S. Steel Corporation		
Carnegie Steel Company	Clairton	366
Illinois Steel Company	Gary, Ind.	138*
Republic Iron & Steel Company	Youngstown, Ohio	61
Republic Iron & Steel Company	Birmingham, Ala.	57*
Weirton Steel Company	Weirton	37
Columbia Steel Company	Provo	33
Trumbull-Cliffs Furnace Company	Warren, Ohio	47
Diamond Alkali Company	Painesville, Ohio	23
Bethlehem Steel Company	Buffalo, N. Y.	114
By-Product Coke Corporation	South Chicago, Ill.	110*
 GAS PLANTS		
Battle Creek Gas Company	Battle Creek, Mich.	11
Consumers Power Company	Saginaw River Plant	19
Consumers Power Company	Jackson, Mich.	15*
Winnipeg Electric Company	Winnipeg, Canada	17
Utica Gas & Electric Company	Utica, N. Y.	21
Northern Indiana Gas & Electric Company	Fort Wayne, Ind.	19*
Lynn Gas & Electric Company	Lynn, Mass.	11*

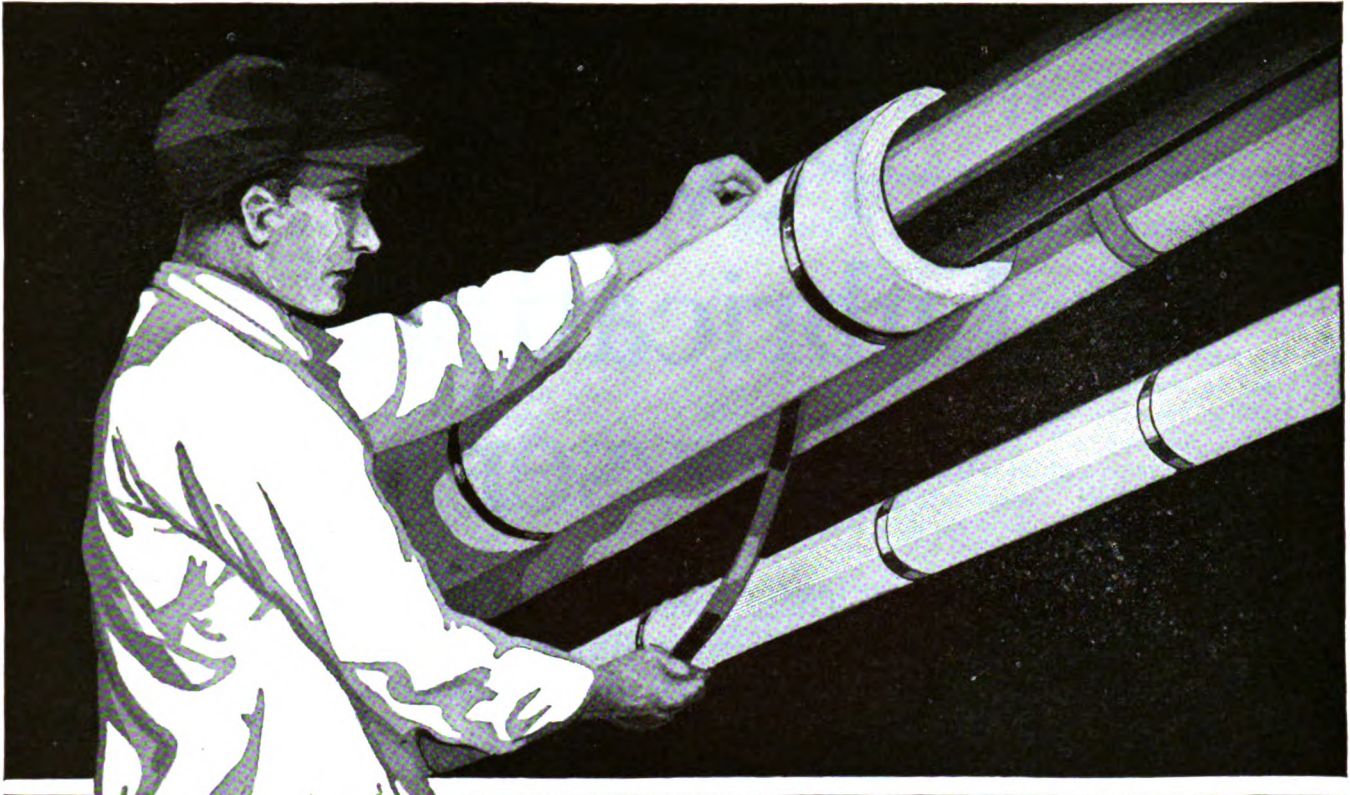
*Under construction.

THE KOPPERS COMPANY PITTSBURGH, PENNA.

New York City, 120 Broadway

Chicago, Ill., Peoples Gas Building

Co-operate:—Refer to The Blast Furnace and Steel Plant

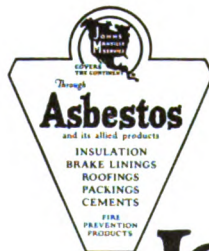


Asbesto-Sponge Felted Insulation

WITH Asbesto-Sponge Felted Insulation on your steam lines you can be sure of two things:

1. You are saving more heat than you would with any other material.
2. Your insulation will retain its efficiency and last longer in service than if any other type were used.

Asbesto-Sponge Felted Insulation is the most efficient on the market. It is so strong you can "hit it with a hammer". You can depend on it to save more money on your steam lines.



JOHNS-MANVILLE Inc.

292 Madison Avenue at 41st Street, New York City

Branches in 62 Large Cities

For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto

JOHNS-MANVILLE

Power Plant Materials

Co-operate:—Refer to The Blast Furnace and Steel Plant

Power Lubrication Bowser

These three words
are forever linked
in the minds of engi-
neers everywhere.

What Bowser and Richardson-Phenix
have contributed to the world's progress
in power conservation, through im-
proved methods of lubrication, oil fil-
tration and oil storage, is plain to be
seen in power plant installations
the world over.

What we can do in *your*
plant, to save money and
promote efficiency, is set
forth in our new folders.

Address Dept. 2, please.

S.F. BOWSER & COMPANY, Inc.
LUBRICATION ENGINEERS AND MANUFACTURERS
FORT WAYNE, INDIANA, U.S.A.

LUBRICATORS-OIL FILTERS-OILING SYSTEMS-ACCESSORIES
OIL STORAGE AND DISTRIBUTION SYSTEMS

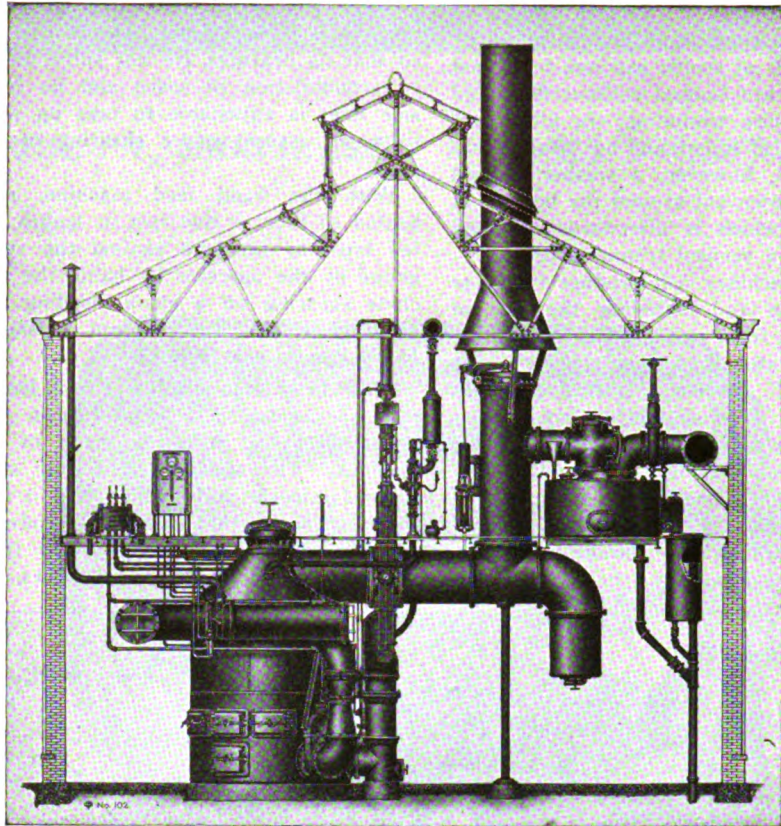
Co-operate:—Refer to The Blast Furnace and Steel Plant

Blue Gas Engineering—

¶The vital importance of careful engineering in the design and construction of blue gas apparatus is very apparent to the discriminating investigator.

¶This type of apparatus cannot be "thrown together." It must be designed and built with regard to proper materials properly bestowed.

¶It must afford ease and economy of operation, adaptability to changed conditions and rugged resistance to wear and tear.



U. G. I. BLUE GAS APPARATUS is the original.

Its experimental stages were passed years ago. It produces a **CLEAN, COOL GAS**, having high flame temperature and does it cheaply and efficiently.

U. G. I. BLUE GAS is a substitute for natural gas.

We would be glad to show facts and figures.

THE U. G. I. CONTRACTING CO.

Broad and Arch Sts., Philadelphia

335 Peoples Gas Bldg., Chicago

928 Union Arcade, Pittsburgh



Co-operate:—Refer to The Blast Furnace and Steel Plant

Take the Free Services of these Keystone Lubri- cation Engineers into your own organization



KEYSTONE Grease has been sold for forty years on the positive guarantee that a saving of at least 10% will result, including the cost of labor to apply it. Today Keystone Lubrication Engineers are demonstrating in every industry the tremendous economies resulting from the use of Keystone Lubricants and Keystone Systems. They are ready to serve you. Investigate! Write!

KEYSTONE LUBRICATING CO.

Lubrication Engineers : Est. 1884

PHILADELPHIA, PENNA.



Keystone Grease

The Master Lubricant

**For Every
Industry**

Reg. U. S. Pat. Off.

Co-operate:—Refer to The Blast Furnace and Steel Plant

A Record of Achievement

Less than three years have elapsed since The Koppers Company's Becker type combination coke and gas oven was introduced. In this time contracts for seventeen installations totaling 1099 ovens of the Becker type have been received. Eleven of these plants are now in operation, demonstrating in actual practice that this type of oven is a marked improvement over all previous types from the standpoint of design, construction and operation.

Plants of the Becker Oven Type in the United States and Canada

COKE PLANTS	LOCATION	NO. OVENS
U. S. Steel Corporation		
Carnegie Steel Company	Clairton	366
Illinois Steel Company	Gary, Ind.	138*
Republic Iron & Steel Company	Youngstown, Ohio	61
Republic Iron & Steel Company	Birmingham, Ala.	57*
Weirton Steel Company	Weirton	37
Columbia Steel Company	Provo	33
Trumbull-Cliffs Furnace Company	Warren, Ohio	47
Diamond Alkali Company	Painesville, Ohio	23
Bethlehem Steel Company	Buffalo, N. Y.	114
By-Product Coke Corporation	South Chicago, Ill.	110*
GAS PLANTS		
Battle Creek Gas Company	Battle Creek, Mich.	11
Consumers Power Company	Saginaw River Plant	19
Consumers Power Company	Jackson, Mich.	15*
Winnipeg Electric Company	Winnipeg, Canada	17
Utica Gas & Electric Company	Utica, N. Y.	21
Northern Indiana Gas & Electric Company	Fort Wayne, Ind.	19*
Lynn Gas & Electric Company	Lynn, Mass.	11*

*Under construction.

THE KOPPERS COMPANY PITTSBURGH, PENNA.

New York City, 120 Broadway

Chicago, Ill., Peoples Gas Building

Co-operate:—Refer to The Blast Furnace and Steel Plant

The Blast Furnace and Steel Plant

The guardian OF countless bearings

AFTER all, there is only one place where a lubricant is worth anything to you, and that is in the bearing. If it is Keystone Grease, it will stay in its proper place and lubricate, because of its unchanging density.

It properly films the bearings until consumed by use; so that 1 pound of Keystone Grease equals 3 or 4 pounds of any other known grease. Does not drip, nor creep.

Keystone Grease is a pure petroleum product made in densities to suit various conditions. It is as honest a lubricant as can be made and safeguards countless thousands of bearings in America's leading industrial plants.

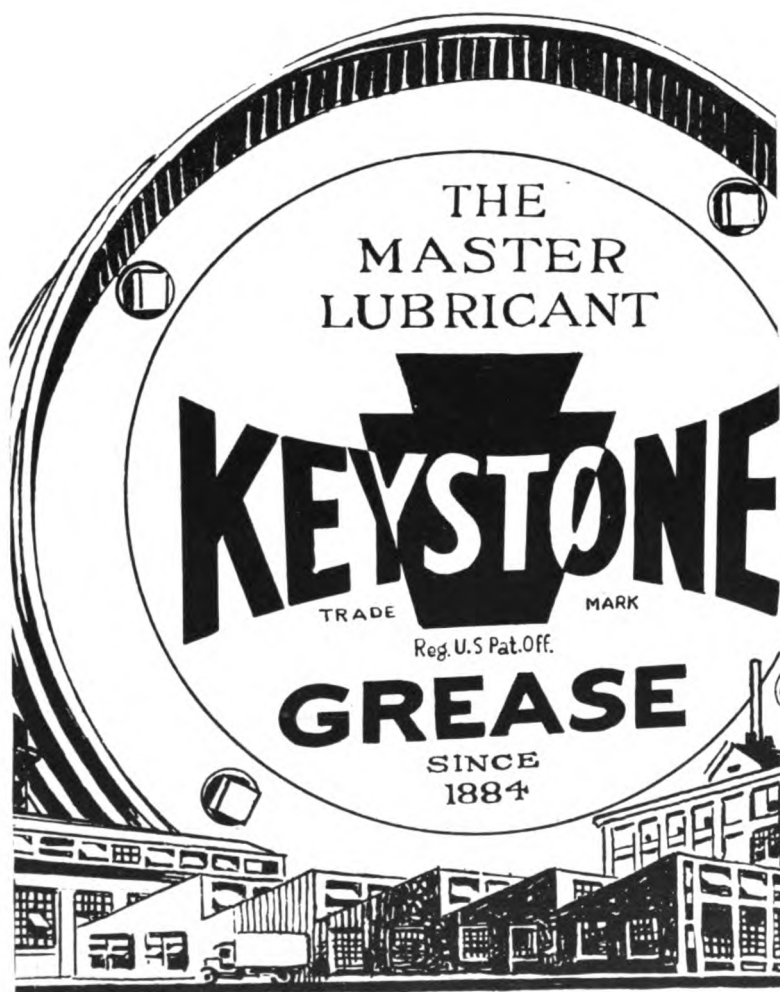
Write for two booklets just off the press, "Keeping Down the Cost of Lubrication with Keystone Grease Cups" and "Densities and Uses of Keystone Grease." New! Interesting! Free!

Write to

**KEYSTONE
LUBRICATING
COMPANY**

Lubricating Engineers
PHILADELPHIA, PA.
at 21st and Clearfield Sts.

EST. 1884



Co-operate:—Refer to The Blast Furnace and Steel Plant



The **KOPPERS COMPANY**

Designers and Builders *of*

BY-PRODUCT COKE AND GAS PLANTS

WATER GAS PLANTS

PRODUCER GAS PLANTS

GAS PURIFICATION PLANTS

BENZOL RECOVERY PLANTS

GASOLINE RECOVERY PLANTS

TAR DISTILLING PLANTS

COAL HANDLING EQUIPMENT

COKE SCREENING STATIONS

COAL DRYERS



General Office

Union Trust Building, Pittsburgh, Pa.

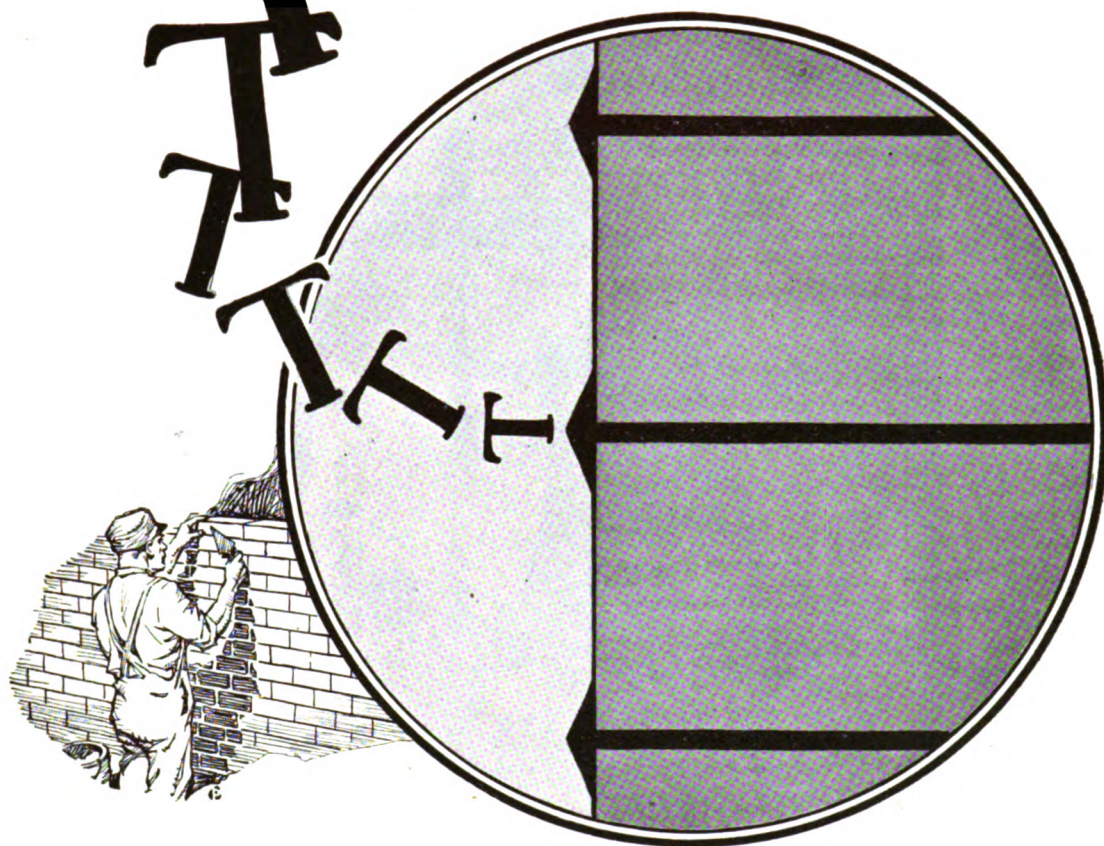
Branch Offices

Peoples Gas Building, Chicago, Ill.

Equitable Building, New York, N. Y.

Co-operate:—Refer to The Blast Furnace and Steel Plant

The T-joint



gives added life to your fire-brick

IN thousands of boiler rooms, fire-brick are not getting a square deal.

They fail prematurely because they are set up with a type of joint that makes no allowance for their expansion or protection of the brick edges.

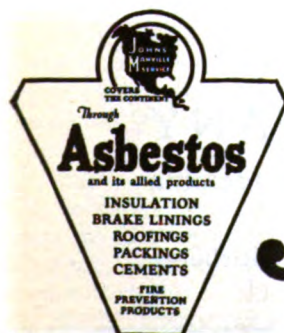
Fire-brick, as everyone knows, expand when they are heated. Something must take up this expansion or the setting bulges and cracks. Hence the relatively great thickness of the cement in the Johns-Manville T-joint. This greater thickness

acts as a cushion to absorb expansion. Thick joints can be made with Johns-Manville High Temperature Cement because it will resist heat and strain.

Also note how the overlapping "T" of this joint protects the edges of the brick — the place where spalling starts. This, too, adds to fire-brick life.

Try the Johns-Manville T-joint on one of your boiler settings and see how much longer it lasts. We will send you full particulars of how this joint is laid. Write:

JOHNS-MANVILLE Inc., 292 Madison Ave. at 41st St., New York City
Branches in 62 Large Cities
For Canada: Canadian Johns-Manville Co., Ltd., Toronto

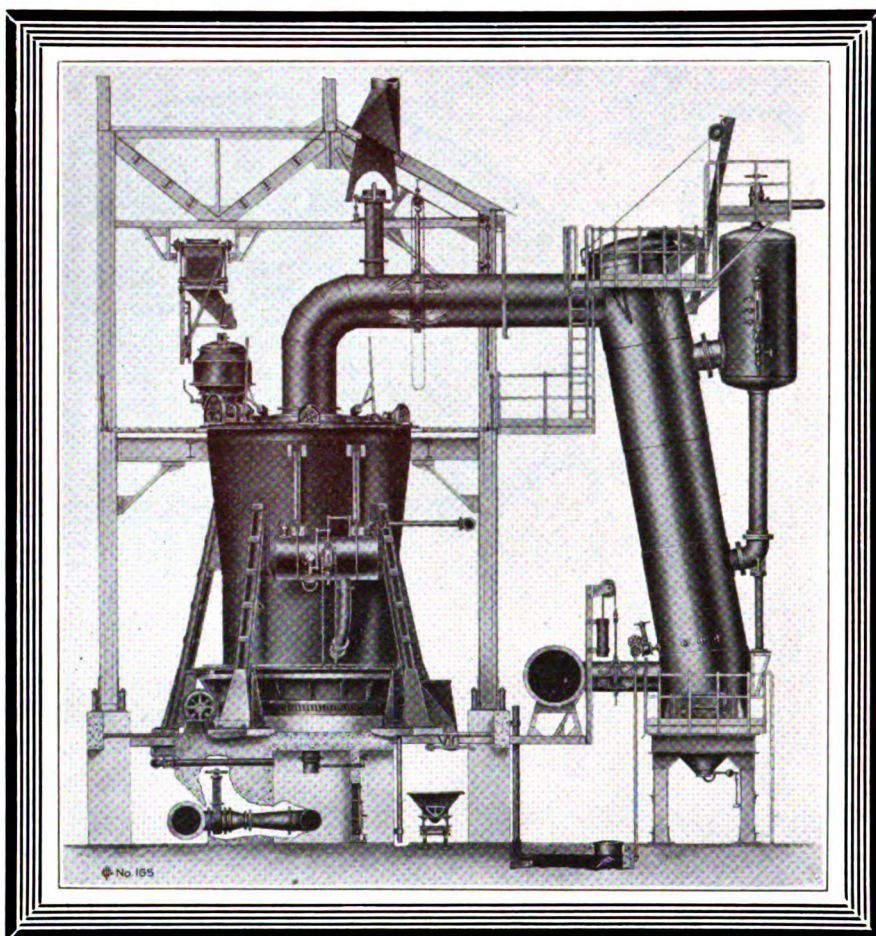


JOHNS-MANVILLE

Power Plant Materials

Co-operate:—Refer to The Blast Furnace and Steel Plant

THE U. G. I. PRESSURE PRODUCER
 is the result of scientific research in producer gas production.
 It incorporates the best in the art.



Installed with a U.G.I. WASTE HEAT BOILER and using coke fuel, the U.G.I. PRESSURE PRODUCER constitutes the ideal unit of this character.

Its features include a water jacket, which eliminates the brick lining with consequent clinker troubles. The water jacket also serves as a low pressure steam generator.

Its mechanical cleaning feature eliminates shut-downs for cleaning and permits 24-hour continuous operation.

We would be glad to discuss it with you.

THE U. G. I. CONTRACTING COMPANY

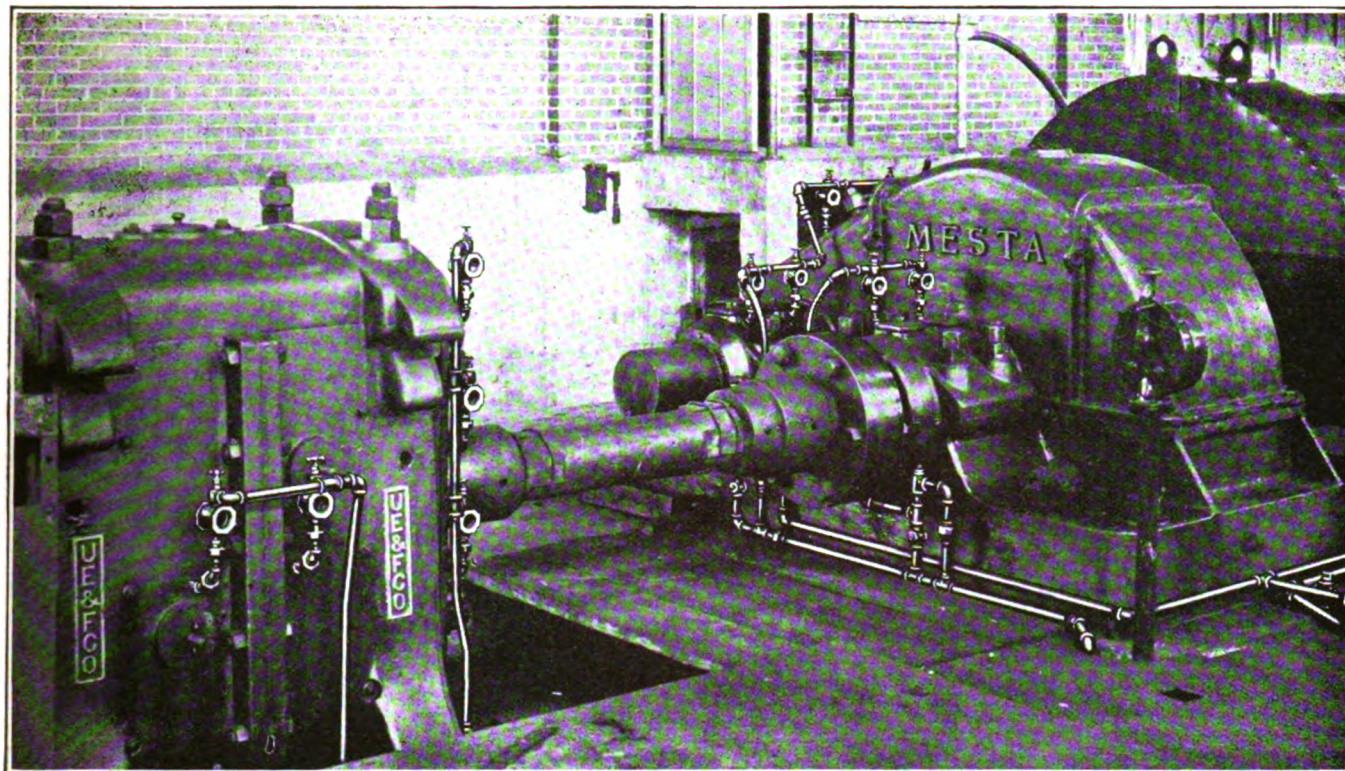
Broad and Arch Streets

Philadelphia

421 Peoples Gas Bldg., Chicago

928 Union Trust Bldg., Pittsburgh

Co-operate:—Refer to The Blast Furnace and Steel Plant

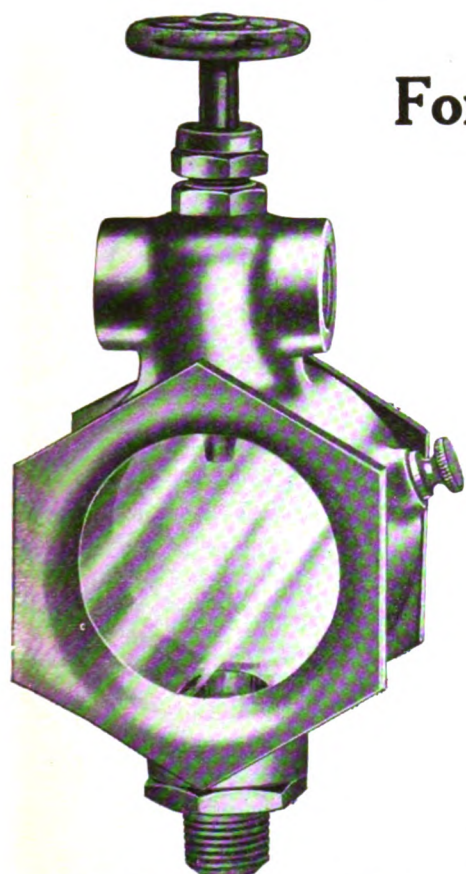


A Bowser lubricated Mesta Reduction Gears and United Engineering & Foundry Company Pinion, International Nickel Company Plant

Forced feed automatic lubrication for reduction gears and pinions

Continuous streams of cool clean filtered oil are delivered by Bowser's systems to gears, pinions, and bearings. Life of the gears is lengthened. Troubles due to overheating are avoided, forced shut-downs are eliminated, and production is maintained.

Our Lubrication Engineers have had much experience. What they know is at your service. Address Dept. 5, for literature.



R. P. Clear Vision Sight
Feed Oiler

S.F.BOWSER & COMPANY, Inc.
LUBRICATION ENGINEERS AND MANUFACTURERS
FORT WAYNE, INDIANA, U.S.A.

**LUBRICATORS-OIL FILTERS-OILING SYSTEMS-ACCESSORIES
OIL STORAGE AND DISTRIBUTION SYSTEMS**

Co-operate:—Refer to The Blast Furnace and Steel Plant

Get your profit out of a lubricant

buy reduced labor cost

One of the chief costs of a lubricant is the cost of applying it. This is one reason why the final cost of Keystone Grease is so low. The attention required for its application is a third less than that demanded by ordinary lubricants.

Keystone Grease is all lubricant—a pure petroleum product. Because of its unchanging density it stays in the bearings until consumed by use. One pound of Keystone Grease equals three to four pounds of ordinary grease and four to six gallons of oil.

Write for these booklets just off the press, "Keeping Down the Cost of Lubrication" and "Densities and Uses of Keystone Grease." New! Interesting! Free! . . . KEYSTONE LUBRICATING CO., PHILADELPHIA, PA., 21st & Clearfield Streets. Est. 1884. *Branch Offices and Warehouses in the Principal Cities of the United States.*

Co-operate:—Refer to The Blast Furnace and Steel Plant

The **KOPPERS COMPANY**

Designers and Builders

of

BY-PRODUCT COKE AND GAS PLANTS

WATER GAS PLANTS

PRODUCER GAS PLANTS

GAS PURIFICATION PLANTS

BENZOL RECOVERY PLANTS

GASOLINE RECOVERY PLANTS

TAR DISTILLING PLANTS

COAL HANDLING EQUIPMENT

COKE SCREENING STATIONS

COAL DRYERS



General Office

Union Trust Building, Pittsburgh, Pa.

Branch Offices

Peoples Gas Building, Chicago, Ill.

Equitable Building, New York, N. Y.

Co-operate:—Refer to The Blast Furnace and Steel Plant

Get your profit out of a lubricant *buy reduced friction*

DON'T just spend your money for a lubricant. Get your profit out of it; buy reduced friction.

Power wasted in overcoming friction means fuel wasted in producing power. To reduce friction use Keystone Grease and Keystone Systems of Lubrication. They will not only reduce friction, but conserve the coal pile and give you superior lubricating service.

Keystone Grease is all lubricant—a pure petroleum product. Because of its unchanging density it stays in the bearings until consumed by use to lubricate—lubricate and lubricate. One pound of Keystone Grease equals three to four pounds of ordinary grease and four to six gallons of oil.

Investigate! *Keystone Systems of Lubrication* are completely described in a booklet just off the press, "Keeping Down the Cost of Lubrication." Get this booklet, also the handiest ready reference chart on lubrication, we believe, that has ever been published, contained in a new booklet, "Densities and Uses of Keystone Grease." Both free upon request. KEYSTONE LUBRICATING CO., Philadelphia, Pa., at 21st and Clearfield Sts. Established 1884. Branch Offices and Warehouses in the Principal Cities of the World.

KEYSTONE LUBRICATING CO.
PHILADELPHIA, PA.

GENTLEMEN: Send us without obligation your two booklets, "Keeping Down the Cost of Lubrication" and "Densities and Uses of Keystone Grease." My name, my company's name and address are written in the margin of the magazine below.



Co-operate:—Refer to The Blast Furnace and Steel Plant

The **KOPPERS COMPANY**

Designers and Builders *of*

BY-PRODUCT COKE AND GAS PLANTS

WATER GAS PLANTS

PRODUCER GAS PLANTS

GAS PURIFICATION PLANTS

BENZOL RECOVERY PLANTS

GASOLINE RECOVERY PLANTS

TAR DISTILLING PLANTS

COAL HANDLING EQUIPMENT

COKE SCREENING STATIONS

COAL DRYERS



General Office

Union Trust Building, Pittsburgh, Pa.

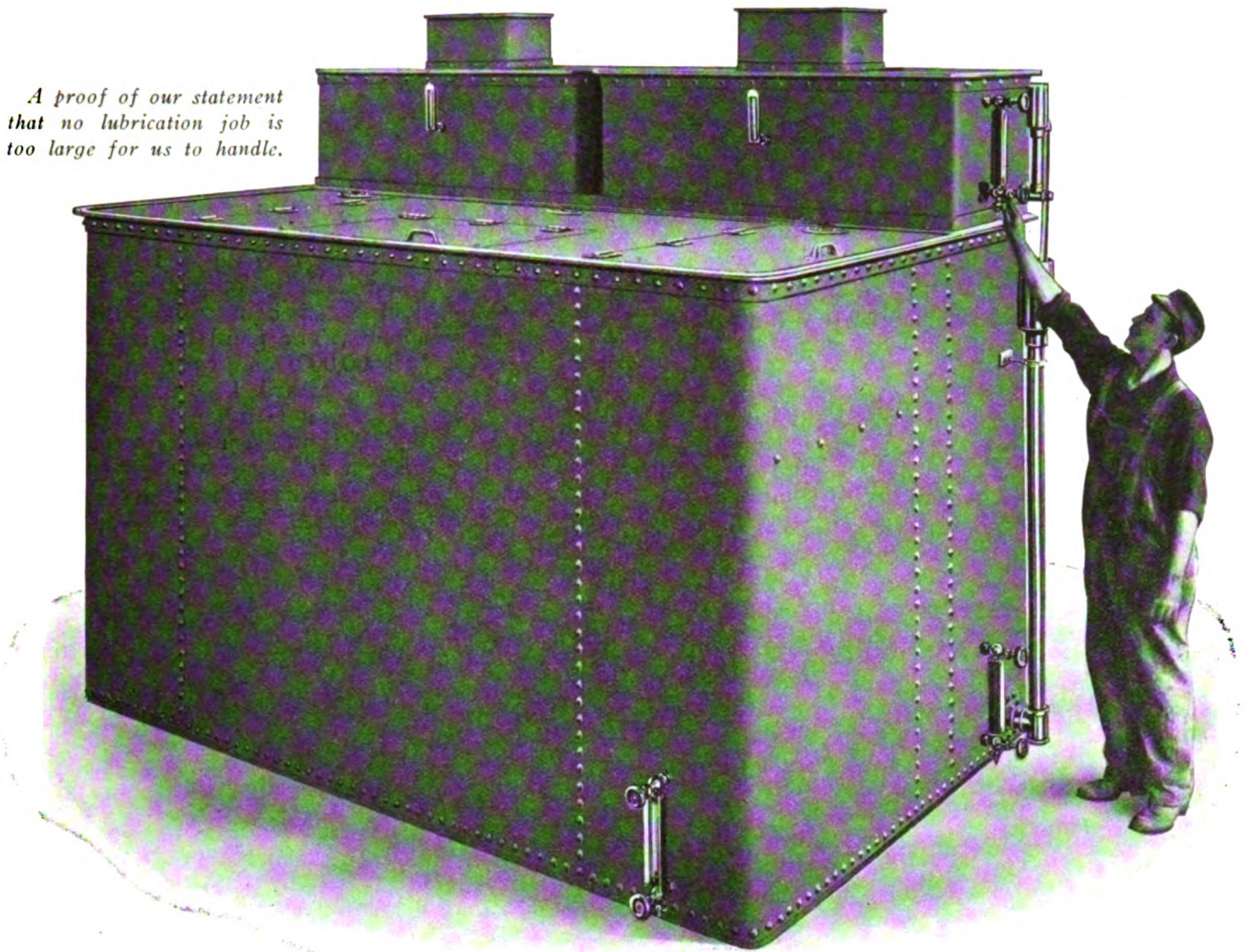
Branch Offices

Peoples Gas Building, Chicago, Ill.

Equitable Building, New York, N. Y.

Co-operate:—Refer to The Blast Furnace and Steel Plant

*A proof of our statement
that no lubrication job is
too large for us to handle.*



Any Size Problem Suits Us

As lubrication engineers and manufacturers, we are ready to tackle any lubrication job, big, little, or medium size.

The above photograph shows one of our large oil filters. It illustrates the fact that we are ready to design and build the lubrication system to fit your needs, be they big or little, simple or complex.

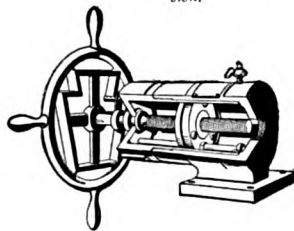
If you have a lubrication problem, need competent advice, desire special filters and systems built, it's the job of our Lubrication Engineers to serve you. We have served the great industries of America in lubrication for forty years.

S.F.BOWSER & COMPANY, Inc.
LUBRICATION ENGINEERS AND MANUFACTURERS
FORT WAYNE, INDIANA, U.S.A.

LUBRICATORS-OIL FILTERS-OILING SYSTEMS-ACCESSORIES
OIL STORAGE AND DISTRIBUTION SYSTEMS

Co-operate:—Refer to The Blast Furnace and Steel Plant

Saved \$350 in Lubricants alone by installing this Keystone system of lubrication on belt conveyor



Sectional view of Keystone Manifold Safety Lubricator, which is the main grease reservoir and agency of compression.



Cross sectional view of Keystone Pressure Reduction Valve.

A SAVING of \$350.00 a year in lubricants alone has resulted from the installation of the Keystone Safety System of Keystone Grease Lubrication on a sulphur loading-tower conveying system. Now one barrel of Keystone grease a year does the work of ten barrels of ordinary grease.

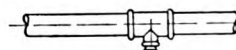
This economy in lubricants is paralleled by another; the saving in wharfage charges while the tower is unloading boats. With the Keystone system continuous operation is possible, instead of the regular shutdown every twelve hours while men lubricate each and every bearing individually.

Dangerous, irksome, too often neglected business, this individual lubrication of each and every bearing. Unnecessary work. Now in two minutes instead of two hours, by just turning the wheel of the lubricator, the entire conveying system is lubricated.

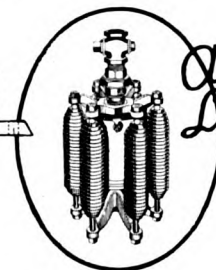
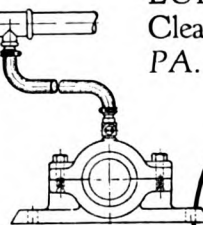
No lubricating system, except the Key-

stone, frees the workmen from individual attention to each and every bearing. No lubricating system other than Keystone has centralized control, making possible the safe lubrication of many bearings from one convenient place, often without costly shut-downs. It is an exclusive Keystone feature.

With the Keystone System, "metal arms" reach out from the Keystone Safety Lubricator to the bearings all over a machine. Through these feed lines Keystone Grease is forced, under high pressure, directly to the bearings, without waste. KEYSTONE LUBRICATING CO., 21st & Clearfield Sts., PHILADELPHIA, PA. Est. 1884.



Illustrating "Take Off" from "Header" Line to bearing. Write for free literature and list of units lubricated by this system. Investigate!



Automatic Lubrication

The Keystone Corner Grease Cup the automatic feed attachment for this system.

KEYSTONE SAFETY SYSTEM of KEYSTONE GREASE LUBRICATION

operate:—Refer to The Blast Furnace and Steel Plant

The **KOPPERS COMPANY**

Designers and Builders *of*

BY-PRODUCT COKE AND GAS PLANTS

WATER GAS PLANTS

PRODUCER GAS PLANTS

GAS PURIFICATION PLANTS

BENZOL RECOVERY PLANTS

GASOLINE RECOVERY PLANTS

TAR DISTILLING PLANTS

COAL HANDLING EQUIPMENT

COKE SCREENING STATIONS

COAL DRYERS



General Office

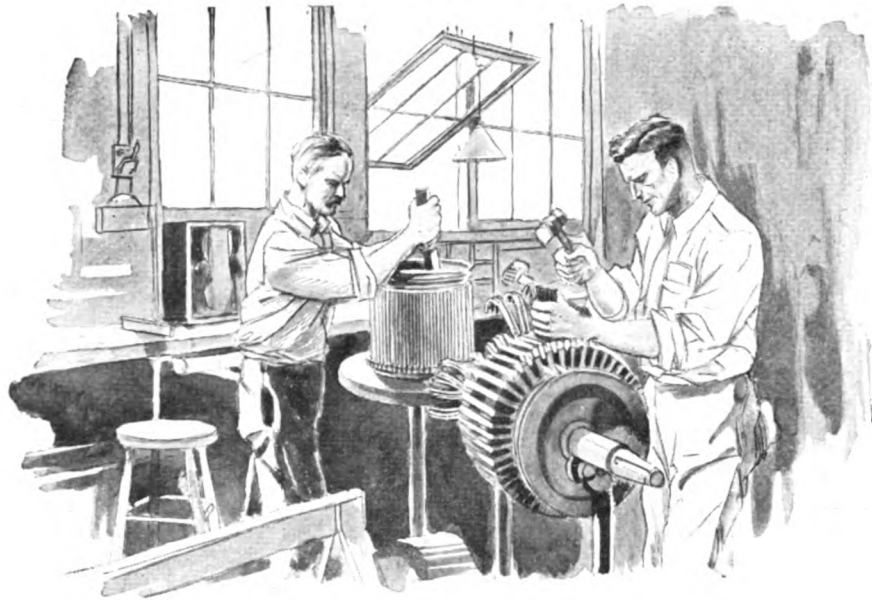
Union Trust Building, Pittsburgh, Pa.

Branch Offices

Peoples Gas Building, Chicago, Ill.

Equitable Building, New York, N. Y.

Co-operate:—Refer to The Blast Furnace and Steel Plant



Rebuilding Electrical Equipment costs more than good lubrication

THE fact cannot be denied that the chief cause of motor and generator troubles can be traced to poor lubrication.

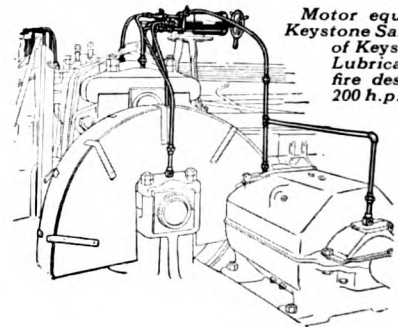
It is common to see armature and field windings of motors and generators saturated with oil. This saturation will gradually loosen and destroy insulation, causing currents to "jump" and result in burnt-out windings and armatures, with a further loss in production delays. Keystone Grease applied by the Keystone Systems of Grease Lubrication eliminates these hazards completely, as it does not thin out under working or atmospheric conditions of heat. It will not creep. It practically eliminates the oil contamination of mica segments. It is free of all the characteristics which make ordinary oil lubricants agencies for the rapid deterioration and greater expense in the upkeep of electrical equipment.

Probably in no other class of mechanical practice will the greater value of Keystone Greases be so apparent as in the lubrication of motors and generators with Keystone Grease No. 6 (light), which is sufficiently liquid to follow the ring and spread over the bearing. In one installation,

typical of hundreds of others, the use of Keystone Grease showed a saving of over 70 per cent. in the cost of armature re-winding alone.

Where peculiar conditions exist, or hazardous and inaccessible places require unusual motor lubrication, the Keystone Safety System may be applied. In any industry, on any machinery, under any conditions, there is always a best possible way to lubricate, and Keystone Lubrication Engineers can help you to determine what it is.

Investigate! **KEYSTONE LUBRICATING CO.**, PHILADELPHIA, PA., at 21st and Clearfield Sts. Est. 1884. Branches and Warehouses in the leading cities of the country. Agencies throughout the world.



Motor equipped with Keystone Safety System of Keystone Grease Lubrication after fire destroyed two 200 h.p. units when sparks ignited oil which had collected on the floor.

and Keystone Systems of Grease Lubrication

Keystone Safety System
Venango Gravity Feed Grease Cup
Organ Spring Automatic Grease Cup
Organ Loose Pulley Grease Cup

We will exhibit at the Association of Iron and Steel Electrical Engineers at Philadelphia September 14th - 19th

Co-operate:—Refer to The Blast Furnace and Steel Plant

Keystone Lubricating Co.
Philadelphia, Pa.

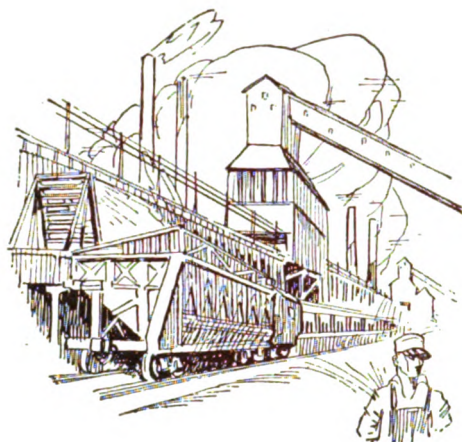
Gentlemen: Please send us complete information about the economies you effect in plant lubrication; also your new free booklets.

Name.....

Co. Name.....

Address.....

Becker Type Combination Coke and Gas Ovens



In determining the type of by-product oven to be built, the iron and steel company must consider not only present requirements of coke and gas, but possible future requirements, especially the amount of gas that will be required.

THE BECKER TYPE COMBINATION COKE AND GAS OVEN which can be heated with coke oven gas, producer gas, blast furnace gas or blue water gas, is designed to take care of present and future demands for gas.

That the iron and steel industry recognizes the advantages of this oven is demonstrated by the fact that virtually all of the by-product ovens contracted for in the past three years have been of this design.

THE KOPPERS COMPANY

Pittsburgh, Penna.

Chicago, Illinois

New York City

Co-operate:—Refer to The Blast Furnace and Steel Plant

Double-Barreled Economy

We will exhibit at the National Steel Exposition, Public Auditorium, Cleveland, September 14th—18th, 1925.

THE first kind of economy you effect in purchasing good grease can be compared to the saving in buying one automobile tire at \$20.00, good for 15,000 miles, instead of buying two at \$15.00 each, good for a total of 15,000 miles, maybe. High-class grease does cost less in the long run than cheap stuff.

The second kind of economy involved is based on the elimination of trouble. Just as a well-built tire protects a rider from delays and real danger of accident, so good lubrication protects a plant from the delays of installing new bearings and from the danger of overheated bearings.

"Keeping Down the Cost of Lubrication" is certainly to be desired, and it is discussed simply and clearly in a booklet under that title. We will gladly mail you a copy. Another of our booklets will be valuable to you because of a reference chart for lubrication; ask for "Densities and Uses of Keystone Grease." Both are free upon request. Keystone Lubricating Co., Philadelphia, Pa., at 21st & Clearfield Sts. Established 1884. Branch offices and warehouses in the principal cities of the world.

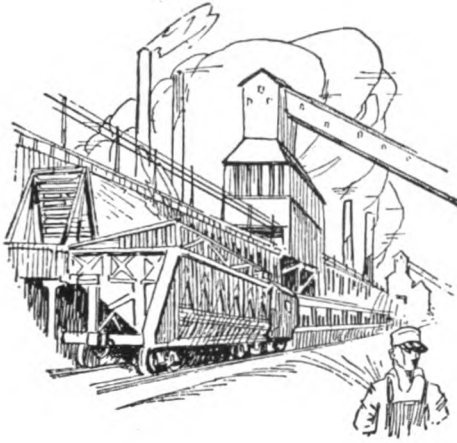


KEYSTONE LUBRICATING CO.
PHILADELPHIA, PA.

GENTLEMEN: Send us without obligation your two booklets, "Keeping Down the Cost of Lubrication" and "Densities and Uses of Keystone Grease." My name, my company's name and address are written in the margin of the magazine below.

Co-operate:—Refer to The Blast Furnace and Steel Plant

Becker Type Combination Coke and Gas Ovens



In determining the type of by-product oven to be built, the iron and steel company must consider not only present requirements of coke and gas, but possible future requirements, especially the amount of gas that will be required.

THE BECKER TYPE COMBINATION COKE AND GAS OVEN which can be heated with coke oven gas, producer gas, blast furnace gas or blue water gas, is designed to take care of present and future demands for gas.

That the iron and steel industry recognizes the advantages of this oven is demonstrated by the fact that virtually all of the by-product ovens contracted for in the past three years have been of this design.

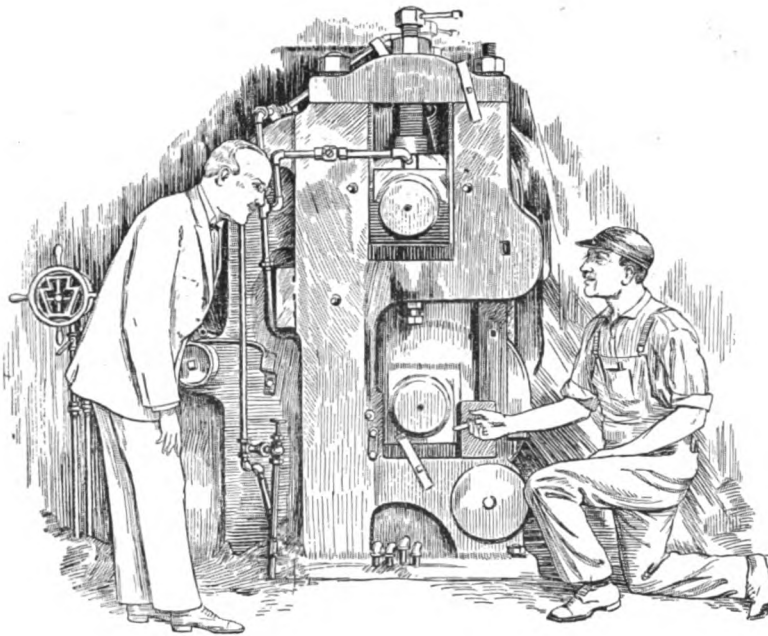
THE KOPPERS COMPANY

Pittsburgh, Penna.

Chicago, Illinois

New York City

Co-operate:—Refer to The Blast Furnace and Steel Plant



The savings possible through the application of scientific lubrication methods are frequently startling to officials who have become accustomed to heavy lubrication expense. Your request will bring our booklets "Keeping Down the Cost of Lubrication" and "Densities and Uses of Keystone Grease" which contain valuable suggestions.

They Counted The Cost

THE engineers in this plant did not deceive themselves. Their lubrication cost included an item of \$3,600 per year for oil and another item of \$1,200 for oiler's wages. It looked reasonable. But there was a machine that required four new bearings per month at a cost of \$108, and another machine that involved a similar expense every two months. For years they had taken for granted the seeming necessity of these replacements because close clearances interfered with the regular application of lubricant and at the same time high temperature lowered its effectiveness. Their lubrication was really costing them \$6,744 per year.

After some study they installed the

Keystone Safety System and Keystone High Temperature Grease. A slightly heavier set of bearings was installed where conditions were worst. After three years of service the same bearings are still in use and apparently good for an indefinite run. The oiler's services are no longer necessary. He was transferred to productive work and one of the machine shop hands now turns down the lubricators once a day at no extra expense. \$1,400 per year covers the cost of an adequate supply of high-grade lubricant.

The total cost has averaged \$1,526 per year since the installation, and the engineers who counted the cost are now counting their saving at the rate of \$5,218 per year.

KEYSTONE LUBRICATING CO.

21st and Clearfield Sts. Philadelphia, Pa.

Established 1884

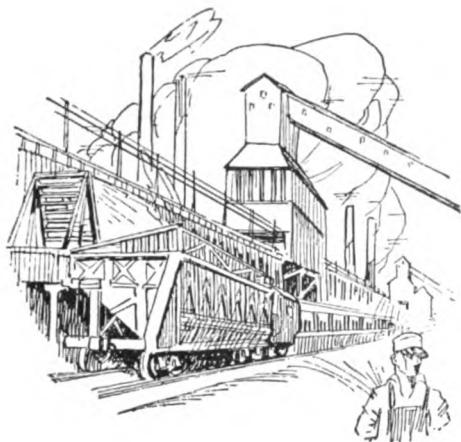
Branch Offices and Warehouses in the principal cities of the world

Keystone Grease

The Master Lubricant — In every Industry

Co-operate:—Refer to The Blast Furnace and Steel Plant

Becker Type Combination Coke and Gas Ovens



In determining the type of by-product oven to be built, the iron and steel company must consider not only present requirements of coke and gas, but possible future requirements, especially the amount of gas that will be required.

THE BECKER TYPE COMBINATION COKE AND GAS OVEN which can be heated with coke oven gas, producer gas, blast furnace gas or blue water gas, is designed to take care of present and future demands for gas.

That the iron and steel industry recognizes the advantages of this oven is demonstrated by the fact that virtually all of the by-product ovens contracted for in the past three years have been of this design.

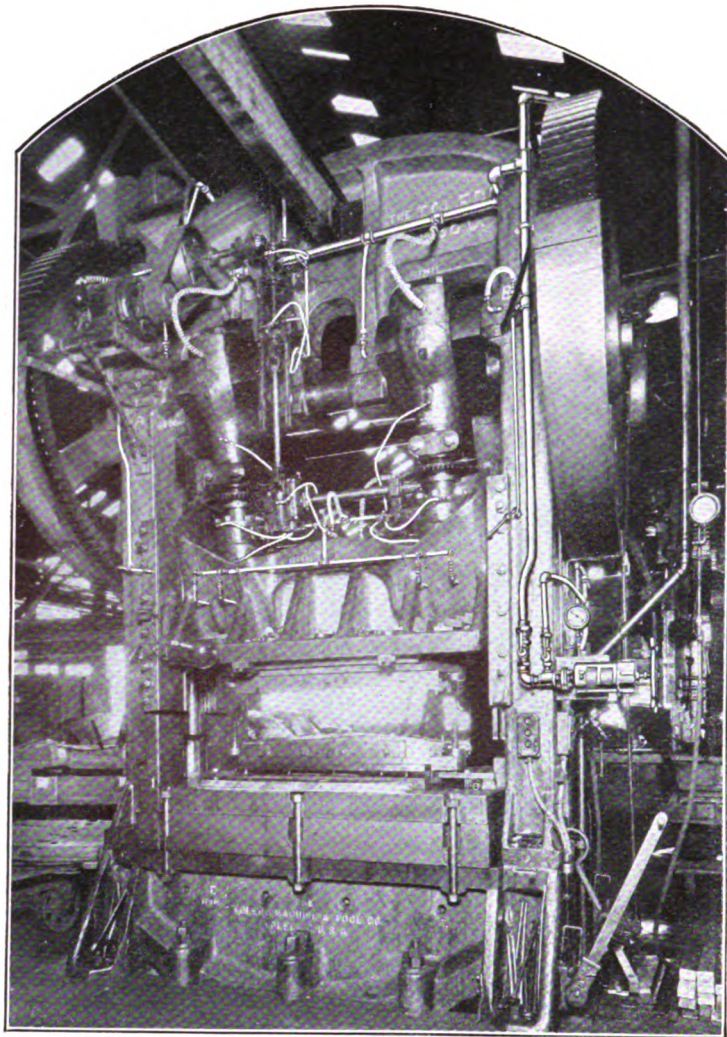
THE KOPPERS COMPANY

Pittsburgh, Penna.

Chicago, Illinois

New York City

Co-operate:—Refer to The Blast Furnace and Steel Plant



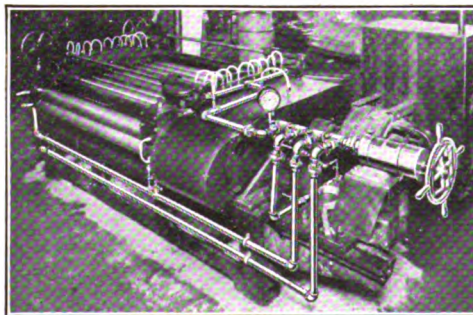
Keystone multiple, force feed Grease Lubricating System installed on a 750 ton Toledo Press.

And on these machines—

RECORDS show, after careful checking, that the investment made in installing the Keystone Safety System of Keystone Grease Lubrication on the following machines, was returned within six months to a year.

Mosser Grinder Rolls (Cement)
Calenders (Rubber)
Calenders (Textile)
Shaker Conveyor Screen (Linoleum)
Paper Dryers (Steam glands)
Rotary Kiln (metal heat treating)
Tube Straightener
Scarfers
Cabinet Planer
Bliss Press
Walton Cork Grinder
Medart Straightener

Sinkler & Davis Band Saw
Inlaid Machine (Linoleum)
Dumping Kettles (Linoleum)
Lap Weld Finishing Mill
Cranes
Butterworth Dryers
Banbury Rubber Mixer
Shartle Stuff Pump
Mine Locomotives



McKay Straightening Rolls

Boring Mills (Metal)
Water Turbine
Shears (Metal)
Charcoal Elevator
Fire Engine Pump
Locomotive Crane
Joy Coal Loader
Beloit Pasting Machine No. 5
Gang Saws
Trimmers
Ore Bridge
Rag Cutter
Charging Rolls
Shear Table
Mill Motor

Send coupon for FREE booklet

KEYSTONE LUBRICATING CO.
Philadelphia, Pa.

Gentlemen: Your system interests me. If it is all you say it is, we want further information—send it to

Name.....

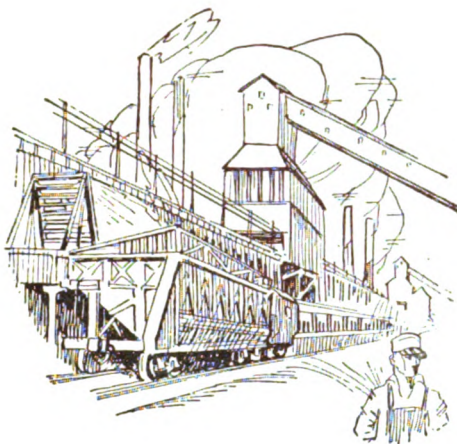
Company.....

Address.....

KEYSTONE SAFETY SYSTEM of KEYSTONE GREASE LUBRICATION

Co-operate:—Refer to The Blast Furnace and Steel Plant

Becker Type Combination Coke and Gas Ovens



In determining the type of by-product oven to be built, the iron and steel company must consider not only present requirements of coke and gas, but possible future requirements, especially the amount of gas that will be required.

THE BECKER TYPE COMBINATION COKE AND GAS OVEN which can be heated with coke oven gas, producer gas, blast furnace gas or blue water gas, is designed to take care of present and future demands for gas.

That the iron and steel industry recognizes the advantages of this oven is demonstrated by the fact that virtually all of the by-product ovens contracted for in the past three years have been of this design.

THE KOPPERS COMPANY

Pittsburgh, Penna.

Chicago, Illinois

New York City

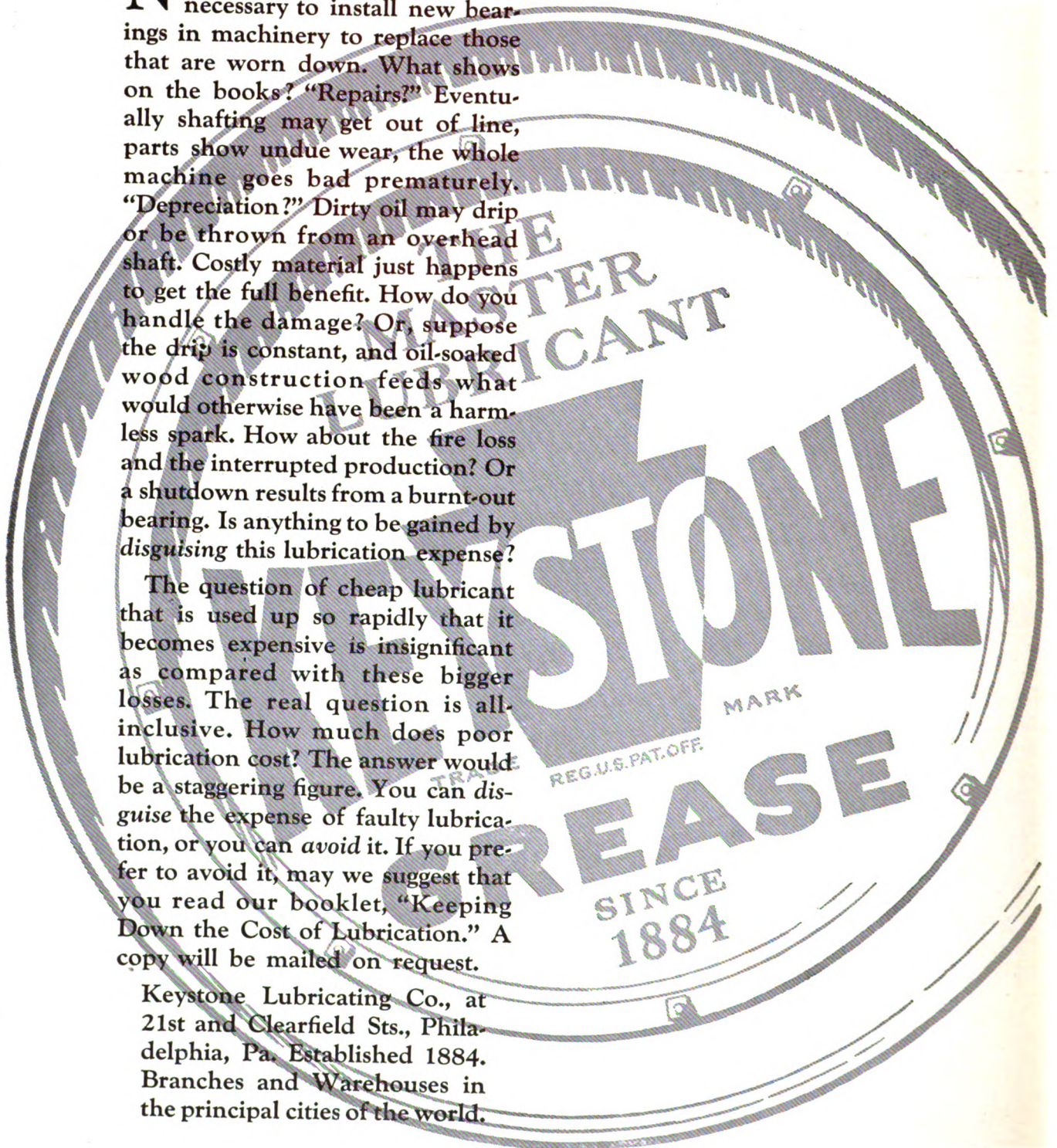
Co-operate:—Refer to The Blast Furnace and Steel Plant

You Can *Disguise* the Expense of Faulty Lubrication or You Can *Avoid It*

NOT infrequently it becomes necessary to install new bearings in machinery to replace those that are worn down. What shows on the books? "Repairs?" Eventually shafting may get out of line, parts show undue wear, the whole machine goes bad prematurely. "Depreciation?" Dirty oil may drip or be thrown from an overhead shaft. Costly material just happens to get the full benefit. How do you handle the damage? Or, suppose the drip is constant, and oil-soaked wood construction feeds what would otherwise have been a harmless spark. How about the fire loss and the interrupted production? Or a shutdown results from a burnt-out bearing. Is anything to be gained by *disguising* this lubrication expense?

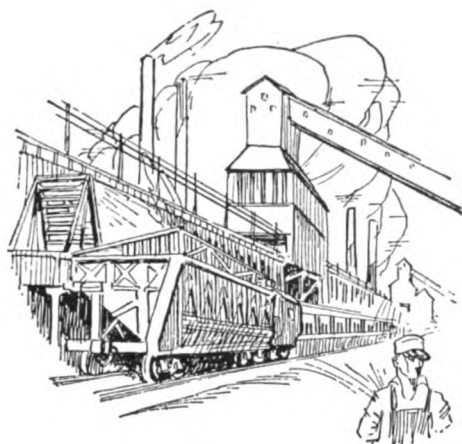
The question of cheap lubricant that is used up so rapidly that it becomes expensive is insignificant as compared with these bigger losses. The real question is all-inclusive. How much does poor lubrication cost? The answer would be a staggering figure. You can *disguise* the expense of faulty lubrication, or you can *avoid* it. If you prefer to avoid it, may we suggest that you read our booklet, "Keeping Down the Cost of Lubrication." A copy will be mailed on request.

Keystone Lubricating Co., at
21st and Clearfield Sts., Philadelphia, Pa. Established 1884.
Branches and Warehouses in
the principal cities of the world.



Co-operate:—Refer to The Blast Furnace and Steel Plant

Becker Type Combination Coke and Gas Ovens



In determining the type of by-product oven to be built, the iron and steel company must consider not only present requirements of coke and gas, but possible future requirements, especially the amount of gas that will be required.

THE BECKER TYPE COMBINATION COKE AND GAS OVEN which can be heated with coke oven gas, producer gas, blast furnace gas or blue water gas, is designed to take care of present and future demands for gas.

That the iron and steel industry recognizes the advantages of this oven is demonstrated by the fact that virtually all of the by-product ovens contracted for in the past three years have been of this design.

THE KOPPERS COMPANY

Pittsburgh, Penna.

Chicago, Illinois

New York City

Co-operate:—Refer to The Blast Furnace and Steel Plant